



Journal of Financial Therapy

Volume 3 | Issue 1

Article 1

2012

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Recommended Citation

Woodyard, A., & Robb, C. (2012). Financial Knowledge and the Gender Gap. *Journal of Financial Therapy*, 3 (1) 1. <https://doi.org/10.4148/jft.v3i1.1453>

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Financial Knowledge and the Gender Gap

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Financial knowledge has been identified as an issue of importance when measuring individual financial wellness. The FINRA Financial Capability Study provides data that make it possible to assess financial knowledge, and to analyze it in the context of financial satisfaction and exhibiting financial behaviors that are generally considered positive. This paper looks at these relationships by gender and by age group, identifying key differences in outcomes and behaviors. The aim of this study was to identify areas and issues where practitioners can develop education and therapy protocols to assist clients in financial development and restoration.

Keywords: financial knowledge; financial satisfaction; gender issues; personal finance

INTRODUCTION

American households often struggle with matters of basic personal finance. Fifty-four percent of American workers have inadequate retirement savings (EBRI, 2010). The U.S. household savings rate fell from levels near 10% in the early 1980's to the lowest rates since the Great Depression in the early 2000s (Juster, Lupton, Smith, & Stafford, 2005). Outstanding consumer credit peaked in mid-2008 at roughly \$2.5 trillion (38% of which was revolving credit) with a relatively mild decline to a level of about \$2.4 trillion in mid-2011 (32% of which was revolving credit) (BLS, 2011). Between 2007 and 2009, 63% of households saw their wealth decline by a median of 18% (Bricker, Bucks, Kennickell, Mach, & Moore 2011). Further, citizens of all ages do not score well on measures of financial knowledge (Braunsberger, Lucas, & Roach, 2004; Chen & Volpe, 1998; Hilgert, Hogarth, & Beverly, 2003; Huston, 2010; Lusardi & Mitchell, 2008).

Not only are Americans, on the whole, inadequately prepared to handle their own finances and financial futures, but research also suggests that there is a gender gap in the levels of knowledge demonstrated by men and women (Huston 2010; Lusardi, & Mitchell,

2007, 2008). Considering that households headed by women alone account for 26% of households, 39% of which contain dependent children (Brobeck & Montalto, 2008), this lack of knowledge indicates a potential long-term problem for such households (Lusardi & Mitchell, 2008; Poterba, Rauh, Venti, & Wise, 2007). Research suggests that knowledge is strongly linked to behavior in the area of personal finance, as more knowledgeable individuals generally display more responsible or effective financial behaviors (Hilgert et al., 2003; Robb 2011; Robb & Woodyard 2011; Xiao, Tang, Serido, & Shim 2011).

Financial knowledge has also been strongly linked to financial satisfaction (or overall financial well-being) in previous studies (Joo & Grable, 2004). Joo (2008) developed a conceptual framework for personal financial wellness. Based on this framework, financial wellness may be considered as an important aspect of overall well-being. Financial wellness may be further subdivided into four components: (a) objective status (as measured by income or other financial status), (b) financial satisfaction, (c) financial behavior, and (d) subjective perceptions, which consist of financial attitudes and financial knowledge. The present study proposes the application of measurements to several of the non-objective status elements of financial wellness and to analyze differences by gender and by age group. Understanding of such differences should provide insights for policy development and assist in directing future research.

REVIEW OF LITERATURE

The Importance of Personal Financial Knowledge

Previous research suggests that knowledge and behavior are strongly related (Hilgert et al., 2003; Lusardi & Mitchell, 2006, 2007; Robb & Woodyard, 2011; Xiao et al., 2011). Findings indicate that how knowledge is measured is important, as significant differences have been noted when objective measures of knowledge are compared with subjective measures of knowledge. Hilgert et al. (2003) identified links between credit management behaviors and scores on a 28-item measure of objective financial knowledge using data from the Surveys of Consumers. Lusardi and Mitchell (2006, 2007) looked at retired households, noting that greater knowledge was associated with planning and succeeding in retirement planning, investing in complex assets (such as stocks), and thinking more about retirement in general. More recent studies divide knowledge into subjective and objective components. Robb and Woodyard (2011) noted a strong positive relationship between subjective knowledge such as keeping up with financial news and self-assessed mathematical ability and the probability that individuals engaged in a variety of recommended financial practices, such as having an emergency fund, checking one's credit report, paying off cards, planning for retirement, and risk management. Objective knowledge, such as understanding compound interest and portfolio diversification, was a significant factor in the study as well, but was not nearly as important as subjective knowledge. Xiao et al. (2011) noted similar findings among a sample of college students.

Gender and the Knowledge Gap

The available evidence indicates that women are less knowledgeable than men in areas of personal finance, and these findings appear to hold true for a variety of populations (Borden, Lee, Serido, & Collins, 2008; Chen & Volpe, 1998; 2002; Lusardi & Mitchell, 2007, 2008; Robb & James 2009). A majority of the findings available come from college student populations. Among college students, women have been found to be less knowledgeable about personal finance topics (Borden et al., 2008; Chen & Volpe, 1998, 2002; Robb & James, 2009). Chen and Volpe (2002) specifically noted that women were less confident and were less interested in learning about personal finance topics when compared with males. Using data from the Health and Retirement Study (HRS), Lusardi and Mitchell (2007, 2008) noted significant gender differences in financial knowledge, with males generally displaying higher levels than females. These findings may be theoretically supported by popular family studies theories from the mid-20th century, such as Blumer's symbolic interactionism where gender roles were socially assigned specific duties, with the male role being that of financial provider and allocator (White & Klein, 2002).

The Present Study

Existing research has clearly identified the existence of a gender gap in personal financial knowledge. However, many of these studies utilized objective measures of financial knowledge, and many failed to expand completely upon the general implications of the knowledge gap. The present study expands upon this research by exploring the effects of both objective and subjective financial knowledge gender differences on financial behavior, as well as self-reported financial satisfaction. Of particular interest is the significance of the observed gender gap in terms of actions taken by consumers and overall financial well-being.

DATA AND METHODOLOGY

This research utilized the Financial Industry Regulatory Authority (FINRA), a self-regulatory agency formed from the former National Association of Securities Dealers (NASD) and certain regulatory functions formerly performed by the New York Stock Exchange (NYSE) in 2007. The FINRA Investor Education Foundation, or FINRA Foundation, exists to provide education to underserved populations regarding the skills, knowledge, and tools required to achieve financial knowledge. In 2009, the FINRA Foundation, in conjunction with the U.S. Department of the Treasury, conducted the National Financial Capability Study in order to assess Americans competence in dealing with four key components of financial capability. These are:

- Making Ends Meet
- Planning Ahead
- Managing Financial Products
- Financial Knowledge and Decision-Making

The National Survey, released in December 2009, is the first of three linked studies that constitute the National Financial Capability Study. Elements to be released later are a state-by-state survey and a military survey. Data for the present study were taken from the National Survey, which was conducted in mid-2009 using a sample of 1488 respondents via a digit-dialed telephone survey.

Analysis of the data set affirmed representativeness and elimination of data with missing variables resulted in a final sample size of 1466. Mean scores were analyzed by performing t-tests on males and females by age group for four sets of variables: objective financial knowledge, financial behaviors, subjective financial knowledge, and financial satisfaction.

RESULTS

Descriptive Statistics

Table 1 summarizes the demographic characteristics of the sample. A slight majority of the respondents were female (51.5%). The median respondent was aged 35-44, and most respondents reported receiving at least some education at the college level. More than one-half (55.5%) of respondents were married, and the median income was between \$35,000 and \$50,000. One-third (33%) of respondents reported an unexpected decrease in household income in the previous 12 months, reflective of the 2009 time frame of the survey. Roughly 64% of respondents indicated being White, 12.4% Black, 13.4% Asian and Other, and 10.4% Hispanic.

Table 1
Demographics

<i>Variable</i>	<i>Category</i>	<i>n</i>	<i>Percentage</i>
<i>Gender</i>	Male	711	48.5
	Female	755	51.5
<i>Age</i>	18-24	204	13.9
	25-34	248	16.9
	35-44	282	19.2
	45-54	270	18.4
	55-64	220	15.0
	65 and over	242	16.5
<i>Education</i>	Did not complete high school	148	10.1
	High school graduate	402	27.4
	Some college	427	29.1
	College graduate	304	20.7
	Post graduate education	155	12.6
<i>Marital Status</i>	Married	813	55.5
	Single	379	25.9
	Separated	23	1.6
	Divorced	143	9.8
	Widowed	108	7.4

<i>Income</i>	Less than \$15,000	266	18.1
	\$15,000 to \$25,000	178	12.1
	\$25,000 to \$35,000	155	10.6
	\$35,000 to \$50,000	201	13.7
	\$50,000 to \$75,000	271	18.5
	\$75,000 to \$100,000	147	10.0
	\$100,000 to \$150,000	148	10.1
	More than \$150,000	100	6.8
<i>Race/Ethnicity</i>	White	935	63.8
	Black	182	12.4
	Hispanic	152	10.4
	Asian or Other	197	13.4

Objective Financial Knowledge

The FINRA Financial Capability National Survey asks five questions related to financial knowledge. These questions test respondents' knowledge regarding compound interest, inflation, the relationship between bond prices and interest rates, mortgage basics, and portfolio diversification. A summative scale was created by adding the number of correct responses, ranging from 0 to 5. Reliability analysis on the scale indicated a Cronbach's alpha of .56, and further analysis indicated that each item contributes to the scale's reliability. Results of the t-tests are presented in Table 2.

Table 2
Financial Knowledge

<i>Age Group</i>	<i>Male</i>	<i>Female</i>	<i>Difference</i>	<i>Percentage</i>	<i>t Statistic</i>	<i>Significance</i>
18-24	2.39	1.79	0.60	25.1%	3.21	0.00**
25-34	3.00	2.33	0.67	22.3%	4.09	0.00**
35-44	3.12	2.89	0.23	7.4%	1.47	0.14
45-54	3.27	2.93	0.34	10.4%	2.08	0.04*
55-64	3.71	2.78	0.93	25.1%	5.75	0.00**
65+	2.95	2.34	0.61	20.7%	3.41	0.00**

* $p < .05$, ** $p < .01$ (2-tailed)

The results indicate that there was a substantial difference between males and females in financial knowledge at nearly every age level, but particularly for older and younger respondents. No significant financial knowledge difference between women and men was noted for those aged 35-44 for the present sample.

Financial Behaviors

Six financial planning behaviors generally regarded as being beneficial were identified with the intent of determining those practices that most closely correlated to financial knowledge. The behaviors were selected based on their applicability to the major areas of financial planning: personal finance basics, borrowing, saving/investing, and protection (Huston, 2010). The six financial behaviors are described as follows, and their derivation from the survey data is explained.

- **Emergency Fund:** Have you set aside emergency or rainy day funds that would cover your expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies? Answers of 1 = Yes recoded to a value of 1.
- **Credit Report:** In the past 12 months, have you obtained a copy of your credit report? Answers of 1 = Yes recoded to a value of 1.
- **No Overdraft:** Do you or your spouse/partner overdraw your checking account occasionally? Answers of 2 = No recoded to a value of 1.
- **Credit Card Payoff:** How many credit cards do you have? And In the past 12 months, which of the following describes your experience with credit cards? – I always pay my credit cards in full. Respondents who either had no credit cards or always paid balances in full recoded to a value of 1.
- **Retirement Account:** Do you (or your spouse/partner) have any retirement plans through a current or previous employer, like a pension plan or a 401(k)? Or do you (or your spouse/partner) have any other retirement accounts *not* through an employer, like an IRA, Keogh, SEP or any other type of retirement account that you have set up yourself? Respondents who answered 1 = Yes to either question recoded to a value of 1.
- **Risk Management:** The survey asks about four categories of risk management policies: health insurance, homeowner's or renter's insurance, life insurance, and auto insurance. There was no question regarding disability insurance. Because some individuals have no requirement for auto insurance or life insurance, respondents who indicated that they had at least two of the four policies in place recoded to a value of 1.

Table 3
Financial Behaviors

<i>Age Group</i>	<i>Male</i>	<i>Female</i>	<i>Difference</i>	<i>Percentage</i>	<i>t statistic</i>	<i>Significance</i>
18-24	2.26	2.06	0.20	8.8%	0.90	0.37
25-34	3.48	3.12	0.36	10.3%	1.59	0.11
35-44	3.68	3.58	0.10	2.7%	0.41	0.68
45-54	3.45	3.65	-0.20	-5.8%	-0.99	0.32
55-64	4.95	3.53	0.42	10.6%	2.07	0.04*
65+	3.77	3.06	0.71	18.8%	4.38	0.00**

* $p < .05$, ** $p < .01$ (2-tailed)

A summative scale was constructed based upon a respondent's participation in the six identified Financial Behaviors. Higher scores on the scale indicate a greater number of positive financial behaviors. Values for all age and gender classifications ranged from 0 to 6. Reliability analysis indicated a Cronbach's alpha of .64.

In spite of the differences in financial knowledge revealed in Table 2, there were few age group differences in the practice of preferred financial behaviors. In general, males scored slightly higher than females for all age groups except those aged 45-54. However, significant differences were noted only among the oldest age groupings.

Subjective Financial Knowledge

A financial knowledge scale was constructed based on the respondents' confidence in their knowledge of financial matters. Each of the four items was answered on a 7 point Likert-type scale. The items cover respondents' self-assessment of their ability to deal with day-to-day financial activities, mathematical ability, knowledge of financial news and events, and overall financial knowledge. Testing for reliability returned a Cronbach's alpha of .66, with each individual item contributing to the reliability of the scale. A mean, rather than a sum, was selected for the t-test because the number returned was more similar to the other scales than the summative scale would have been. This should avoid distorting the impact of variation in this scale relative to the other scales used in this research. Table 3 presents the results from the t-test. As with the analysis for financial behavior, statistically significant differences in confidence are only noted among older respondents (those aged 55-65).

Table 4
Subjective Financial Knowledge

<i>Age Group</i>	<i>Male</i>	<i>Female</i>	<i>Difference</i>	<i>Percentage</i>	<i>t statistic</i>	<i>Significance</i>
18-24	5.05	4.89	0.16	3.2%	0.91	0.36
25-34	5.32	5.10	0.22	4.1%	1.46	0.15
35-44	5.36	5.27	0.09	1.7%	0.69	0.49
45-54	5.41	5.39	0.02	0.4%	0.15	0.88
55-64	5.88	5.41	0.47	8.0%	3.20	0.00**
65+	5.59	5.33	0.27	4.7%	1.61	0.11

* $p < .05$, ** $p < .01$ (2-tailed)

Financial Satisfaction

The FINRA survey included one question measuring financial satisfaction, stated “Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition?” Responses ranged from 1 to 10. Responses with missing values for this critical variable were eliminated from the sample. Because this was a single item measurement, no reliability analysis was completed. Results of the t-tests are presented in Table 5. As noted in the table, gender was not a significant differentiator of financial satisfaction for any age group.

Table 5
Financial Satisfaction

<i>Age Group</i>	<i>Male</i>	<i>Female</i>	<i>Difference</i>	<i>Percentage</i>	<i>t statistic</i>	<i>Significance</i>
18-24	5.56	5.43	0.13	2.3%	0.35	0.73
25-34	5.68	5.28	0.40	7.1%	1.19	0.24
35-44	5.44	5.43	0.01	0.2%	0.04	0.97
45-54	5.12	5.38	-0.26	-5.1%	-0.88	0.38
55-64	5.88	5.51	0.37	6.2%	1.02	0.31
65+	6.51	6.34	0.18	2.8%	0.48	0.63

Correlation Analysis

Correlation analysis was conducted on the primary variables of interest, and all of the variables in the study were found to be strongly related, with the exception of objective financial knowledge and financial satisfaction, in which there was no significant relationship found. Results of the correlation analysis are provided in Table A1 of the appendix.

DISCUSSION

The FINRA Financial Capability National Survey of 2009 provides data for evaluation of objective financial knowledge, financial behavior, subjective financial knowledge, and financial satisfaction information. These areas are analyzed to evaluate the differences between males and females by age group in the hope of providing guidelines for areas of education and training that could provide financial therapists and advisors vehicles for assisting clients.

Analysis of objective financial knowledge reinforces the fact that there are differences between men and women in the level of objective financial knowledge (Lusardi & Mitchell, 2008). These differences are the most significant for the youngest (18-24 and 25-34) and oldest (55-64 and 65 and older) age groups. Interestingly, the knowledge differences do not appear to translate directly into behavioral differences or differences in subjective financial knowledge for all of the selected age groupings. Whereas there are differences in behavior and subjective financial knowledge for older Americans, no differences were noted among the younger groups. The results associated with the measure of subjective financial knowledge (or confidence in one's level of financial knowledge) are interesting given the available evidence from behavioral finance on overconfidence (Baker & Nofsinger, 2002). In general, people tend to put more stock in their own knowledge or abilities than may be warranted. Prior research suggests that males are more overconfident than women when the behavior or task is considered to be masculine (Barber & Odean, 2001). Many aspects of financial planning such as investing have historically been considered masculine tasks, so the lack of more distinct differences in the area of subjective financial knowledge is a bit surprising.

No significant differences were noted by gender or age group in terms of financial satisfaction, despite the fact that objective financial knowledge differs significantly for many of the age groups, and knowledge is assumed to have an impact on satisfaction. Previous research has shown differences in financial satisfaction by gender, though there were differences depending on what aspects of personal finance were measured (Hira & Mugenda, 2000). In terms of overall financial satisfaction, women reported lower levels of satisfaction, a finding that is not supported by the current results. The fact that there were no significant differences in financial satisfaction for this sample is an interesting finding given the observed differences in objective knowledge and behavior for some of the select age groups.

Previous research (Hilgert et al., 2003; Lusardi & Mitchell, 2006, 2007) has shown that objective knowledge influences financial behavior, and the general assumption has been that there is a subsequent impact on financial satisfaction as well. These findings may stress the relative unimportance of objective knowledge alone, as subjective knowledge may be a more significant factor in determining action and satisfaction. In effect, men and women do not differ that much where it counts (subjective knowledge and behavior), even though there are obvious differences in terms of their objective knowledge. If this is so, the lack of objective knowledge among women may not be cause for much alarm in terms of behavioral and psychological repercussions.

The analysis performed on these data points merit further exploration. Of particular interest is the gender knowledge gap for both older and younger age groups. How important is it? The present findings suggest that a gap in objective knowledge may be less significant than gaps in subjective knowledge. Interestingly, there is a much smaller gap (and it only exists for older Americans in this sample) in terms of subjective knowledge. For the objective knowledge measure, are there characteristics common to the oldest and youngest age groups that explain the gender gap that narrows in the middle years? One possibility would be that younger women simply do not have practical experience in financial matters and that women from older generations were sheltered from financial decision making by the conventions and mores unique to their age group.

It would be nice to explore the associations between objective knowledge, subjective knowledge, behavior, and satisfaction in more detail. For the present analysis, there is little correlation between objective financial knowledge and satisfaction, but it may be due to the fact that objective knowledge has an indirect impact on satisfaction (that is, objective knowledge influences behavior, which in turn has an impact on satisfaction). In light of these findings, and given previous research (Willis, 2008), it is reasonable to question whether investments in financial knowledge programs alone will provide much benefit and when training in proper financial behaviors might be more beneficial.

IMPLICATIONS FOR PRACTITIONERS

Practitioners who may find this work valuable include financial planners, financial therapists, family therapists, and others who deal with individuals, families, and resource management issues. The results of the study indicate that there are gender differences in objective financial knowledge for most of the age groups tested, though only one age group (55-64) displays differences in subjective financial knowledge. Subjective financial knowledge appears to be the more important of the two factors in determining financial satisfaction, but objective knowledge remains a significant factor and an area where improvements can be made. Young women and older women are most exposed by the gender gap in objective financial knowledge. These same groups may also experience financial hardships. One implication of these results is that financial education or training should be targeted to the groups that have the largest deficits in financial knowledge because these are also more vulnerable populations; young women may be making decisions on behalf of households that contain children. Older women may be making their

own financial decisions for the first time ever, may have less confidence in their knowledge (subjective), and may be less likely to carry out necessary financial decisions.

Financial planners may find themselves in situations where changes in behavior are necessary to achieve financial goals, or even to complete the implementation of the financial plan (Maton, Maton, & Martin, 2010). Understanding this concept, especially how it applies to differing age and gender populations, can increase the effectiveness of a financial plan implementation. Other constituent populations, such as foundations and philanthropic institutions with particular interests in family financial health, or the financial difficulties that may be unique to women, may benefit from these results by discovering new avenues of outreach for their programs. This research also underscores the importance of financial knowledge and training throughout all levels of the educational system. The results from the present analysis clearly identify the group that appears to be at most risk for financial difficulties in the future (older women). Respondents who are female and over the ages of 55 do not necessarily report lower financial satisfaction, but they do display lower objective and subjective financial knowledge and are less likely to engage in recommended financial practices.

FURTHER STUDY

This research creates many opportunities for further study. The first of these is validation. With the forthcoming publication of the state-by-state and military versions of this study, the methodology can be repeated with different populations. In the long term, there is a need for both longitudinal and international data that address these constructs.

This study provides data and analysis that contribute to Joo's (2008) conceptual framework for financial wellness. The data provided by the FINRA survey allows for analysis on several aspects of the proposed framework. Financial satisfaction, financial behaviors, financial knowledge, and some aspects of financial behavior are evaluated, and relationships are established. A modified representation of this conceptual framework is provided in Figure 1. Those concepts that are operationalized by variables in this study are shown in bold print, where concepts that are not represented are shown in regular typeface.

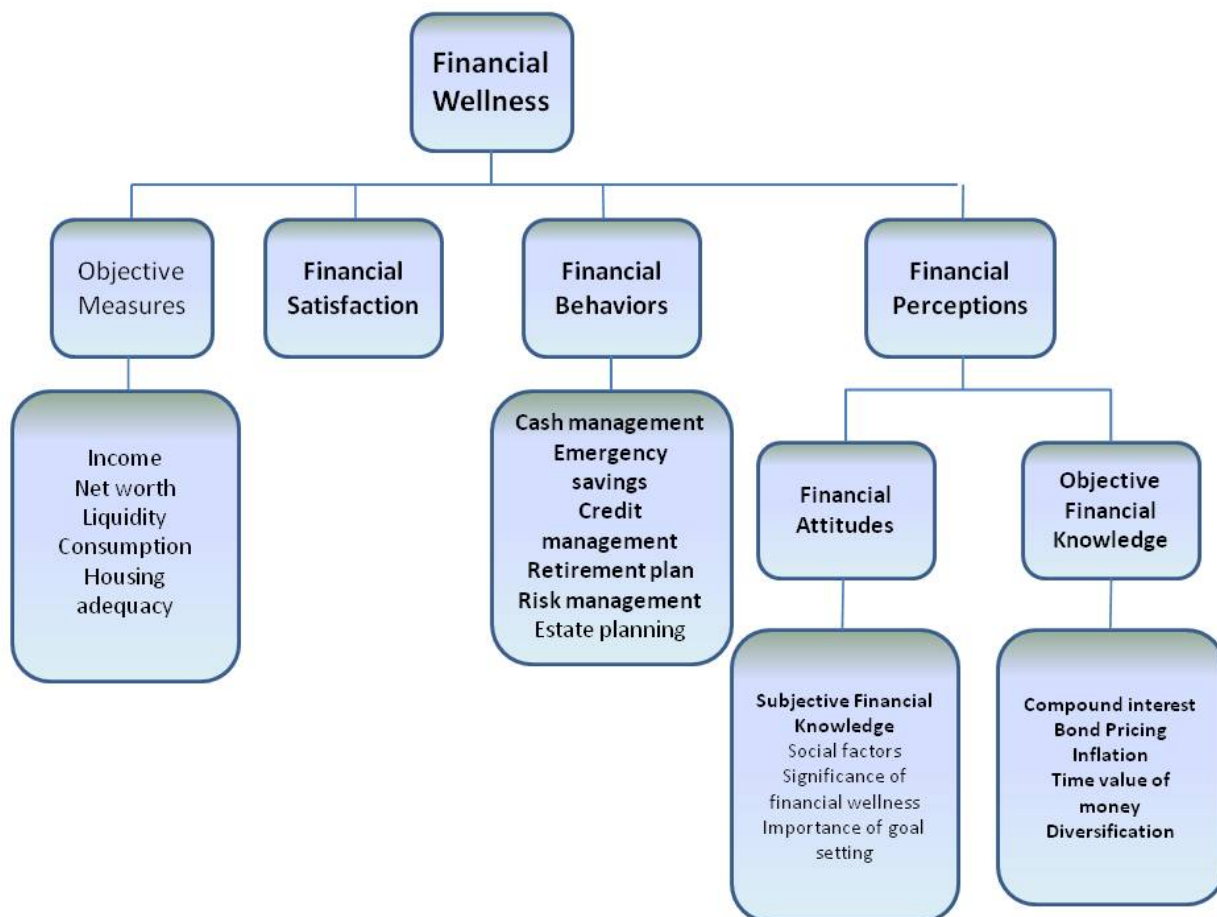


Figure 1. Adaptation of Joo's (2008) Conceptual Framework for Financial Wellness

From an ethnographic perspective, a comparison of the results of this study may be compared with the generational delineations established by Strauss and Howe (1991) as shown in Table 7. Of particular interest are the historical and cultural differences between the Late Boomer and Generation X generations, where there is more equality between the genders in financial knowledge, and the older (Baby Boomer, Silent Generation) and younger (Millennials) generations, where these differences are significant.

Table 6
FINRA study age groups and Generations

<i>Age Group</i>	<i>Birth Years</i>	<i>Generation</i>
18 – 24	1985-1991	Millennials
25 – 34	1975-1984	Gen X/Millennials
35 – 44	1965-1974	Generation X
45 – 54	1955-1964	Late Boomers
55 – 64	1945-1954	Baby Boomers
65 and older	1944 and before	Silent Generation

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APPENDIX

Table A1
Correlational Analysis

	Objective Financial Knowledge	Financial Behaviors	Subjective Financial Knowledge	Financial Satisfaction
<i>Objective Financial Knowledge</i>	---			
<i>Financial Behaviors</i>	.38**			
Men	.39**			
Women	.36**	---		
<i>Subjective Financial Knowledge</i>				
Men	.29**	.39**		
Women	.34**	.42**	---	
	.23**	.36**		
<i>Financial Satisfaction</i>	.10**	.36**	.30**	
Men	.12**	.42**	.33**	
Women	.07	.31**	.28**	---

** $p < .01$ (2-tailed); $n = 1466$